REMARKS

Claims 1-11, 15-24 and 28-42 are all the claims pending in the application. By this Amendment, Applicant amends claims 1, 6, 8, 15, 22, 28, 37, and 38 to further clarify the invention. These amendments are clearly supported throughout the specification, *e.g.*, pages 16-20 and 30-35 of the specification. In addition, by this Amendment, Applicant rewrites claim 29 into its independent form and adds claims 41 and 42.

I. Statement of Substance of the Interview

As a preliminary matter, the Examiner enclosed an Interview Summary. The interview was administrative in nature. That is, Applicant called the Examiner because the Amendment filed on September 16, 2004, in response to the Office Action of June 16, 2004, stated that it was filed under 37 C.F.R. § 1.116. The Amendment was filed under 37 C.F.R. § 1.116 because the Examiner indicated that the Office Action dated June 16, 2004 was a final in the Office Action Summary Sheet. The Examiner confirmed that the Office Action dated June 16, 2004 is a Non-Final and that the Amendment filed under 37 C.F.R. § 1.116 on September 16, 2004 will be considered.

II Summary of the Office Action

The Examiner withdrew the allowability of claims 1-11, 15-24, 28, and 31-40 in view of newly found prior art. In particular, claims 1-4, 6, 7, 15-18, 20-24, 36, 38, and 39 are rejected under 35 U.S.C. § 102 and claims 5, 8-11, 19, 28, 31-34, 37, and 40 are rejected under 35 U.S.C. § 103(a). Claims 29 and 30 contain allowable subject matter.

III. Claims Rejections under 35 U.S.C. § 102

Claims 1-4 and 15-18 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,729,471 to Jain et al. (hereinafter "Jain") and claims 6, 7, 20-24, 36, 38, and 39 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,769,713 to Katayama (hereinafter "Katayama"). Applicant respectfully traverses these rejections in view of the following remarks.

INTRODUCTORY COMMENTS

These introductory comments are provided for explanation only and to ease the understanding of the invention. These introductory comments are not intended to limit the scope of the claims in any way.

An illustrative, non-limiting embodiment of the present invention: provides a system for statistical analysis of positioning or movement of players as it relates to team formation. In particular, an illustrative, non-limiting embodiment of the present invention teaches a system which allows analysis of images by using variety of parameters, thereby providing the user with numeric values for statistical analysis, which may be displayed in a chart format, a graph, a list or in some other form. In other words, an illustrative, non-limiting embodiment generates numeric values from the stored images, and analyzes these numeric values to create meaningful statistics.

For example, the user may search a list of games based on weather conditions or a number of viewers. Moreover, a particular player or players may be analyzed by number of passes, number of shots, their speed, with which foot they kicked the ball and so on. A team formation may be analyzed by showing the viewer where there were open spaces, number of passes, ball control rate, and so on.

Turning to the cited references, Jain discloses: selecting real video/television images of a scene from multiple real video/television images of the scene, particularly so as to select video/television images that are linked to any such (i) spatial perspective(s) on the scene, (ii) object(s) in the scene, or (iii) event(s) in the scene, as are selectively desired by a user/viewer to be shown. Jain teaches that the user/viewer may be presented with two-dimensional images or the three-dimensional images by using multiple video cameras. In Jain, objects of interest in the scene are identified and classified in these two-dimensional images. These multiple two-dimensional images of the scene, and their accompanying object information, are then combined in a computer into a three-dimensional video database, or model, of the scene (*see* Abstract; col. 7, line 13 to col. 8, line 57).

In addition, Jain discloses that from the three-dimensional video, the user may select a desirable two-dimensional image or images. The user/viewer-specified criterion for the two-dimensional images may be of a particular object in the scene. In this case, the computer will combine the images from the multiple video cameras not only so as to generate a three-dimensional video model of the scene, but so as to generate a model in which objects in the scene are identified. In Jain, the computer will subsequently produce, and the display will subsequently show, the particular image appropriate to best show the selected object. This is a feedback loop: the location of an object in the scene serves to influence, in accordance with a user/viewer selection of the object, how the scene is shown. Moreover, the selected object may either be static, and unmoving, or dynamic, and moving, in the scene (Fig. 1; col. 16, lines 29 to 44).

Katayama discloses: a data processing apparatus for a baseball game with a monitor display, a personal computer for processing, storing and controlling input data, a handy-sized touch pen board for inputting the processed information by a scorer into the personal computer, a converter for converting a signal input from the computer into a picture symbol, one or more than one video cassette recorder combined with the personal computer through the converter, a controller for displaying a desired picture in the form of still or dynamic pictures and a video cassette recorder connected to the personal computer and for storing a video picture as edited by said controller. In Katayama, the initial screen on the monitor display and touch pen board displays at least a diamond table, strike zone table, score board table, and a count indicator 4 for indicating strikes, balls, or outs (*see* Abstract; Fig. 1; col. 4, lines 29 to 53).

In Katayama, a team scorer will bring the touch pen board instead of a baseball scorebook, and the video cassette recorder F when he goes to a baseball stadium. When the scorer goes to the baseball stadium in which a televised game is in progress, he will record the broadcast of the game or input the desired data on the screen which displays the touch pen board with the broadcast. It is necessary for the team scorer to go to the baseball stadium so that he can decide the kind of pitch, for example, a fast ball, a curve, a slider, a screw ball, or a fork ball the pitcher threw, and also collect data on the batters. The team scorer switches on the touch pen board and the video cassette recorder linked with the touch pen board when a game starts, and then inputs data on every movement of the pitcher(s) and batter(s). That is, the team scorer inputs the data on strikes or balls through the touch pen and then inputs data on the kind of pitch and ball distribution. The inputted data is then displayed in a table (col. 1, line 35 to col. 2, line 7).

Katayama further teaches that after the team scorer inputs all the game data via the touch pen board, he can bring the touch pen board and the video cassette recorder home or to another place to connect them with the personal computer. The data, stored in the touch pen board, is transferred into the personal computer. As a result, in Katayama, the team scorer or a batter can study the pitcher's pitching combinations and motions during the baseball game by looking at the kinds of pitches thrown by the pitcher and indicated in the form of diagrams, bar graphs, circular graphs, or time progressive diagrams on the monitor display. That is, all the game data will be displayed at necessary places on the same screen, and the team scorer can access important information for analyzing the game or for using it as a reference for future games (col. 2, line 25 to col. 3, line 17).

Rosser discloses: a system for placing event related information into a video broadcast so that the added information does not interfere with or obscure the primary action of interest in the broadcast (*see* Abstract). The recognition and tracking parameters may be provided by sensors attached to the camera itself or by recording data displayed on a score board, for example. A viewer watching the broadcast on a well known television set 28 will see the image of the game into which the inserted indicia has been placed to look as if it really is in the stadium, and which changes size, shape and position appropriately as the image of the game is panned, zoomed and otherwise altered in perspective, and is properly occluded by players or other objects from the game moving in front of it (col. 2, lines 55 to 65; Fig. 1; col. 4, line 59 to col. 5, line 8).

Tamir, previously made of record, discloses: a video manipulating system for manipulating the representation of a sporting event. In particular, Tamir teaches that a user selects (highlights) an object or a region at a certain frame and this object is traced throughout

the entire video. The user can choose to view a video clip of this object or to see a still image of the entire event superimposing acts that occurred at different time points on the same global background image (col. 13, lines 40 to 65). The system is capable of detecting fusion, splitting and occlusion of the object (col. 10, lines 15 to 35). Fig. 2 of Tamir shows tracking of the selected object on the consecutive frames. Fig. 2 is a past trajectory superimposed on a video (col. 8, lines 5 to 10).

ARGUMENT IN RE CLAIMS 1-4 AND 15-18

The Examiner alleges that claims 1-4 and 15-18 are anticipated by Jain. Of these claims, only claims 1 and 15 are independent. Independent claim 1, among a number of unique features, recites:

> data processing means for generating a data list indicating, in time series, a temporal transition of a position and a state of said object picked up by said image-pick up means, with respect to a time...
>
> wherein the display means is operable to display said data list and said animated image.

The Examiner alleges that Jain's environmental builder 12 generating static models containing a priori information such as camera calibration parameters, look-up tables and obstacle information and dynamic models containing task specific information like two dimensional and three dimensional maps, dynamic objects, states of objects in the scene is equivalent to the processing means generating a data list (see page 3 of the Office Action).

In Jain, however, the video display 18 only displays the particular two-dimensional image of the real-world scene showing the object to the viewer and not a data list, as set forth in claim 1. That is, in Jain, the two dimensional and three-dimensional maps generated by the environmental builder 12 are only used to process images and are not themselves displayed on

the display. In other words, Jain is no different from the prior art discussed in the background of the invention in that it provides for visual analysis (displaying images) of a particular object or a scene. Jain is not concerned with creating numerical statistics and as such fails to teach or suggest displaying the data list on the display. In Jain, the created maps are only used for internal processing to generate images.

Jain also teaches that the system displays a video frame on the screen, and a viewer locates some feature points on the screen and inputs required information for each feature point. The system reads image coordinates of the feature points and generates a two-dimensional description that consists of a list describing the players and a list describing the field marks. The player descriptions include each player's name and the coordinates of each player's image. The field mark descriptions include the positions (in the three-dimensional world), and the image coordinates, of all the field marks (col. 22, lines 27 to 55). This list of Jain, however, is to respond to simple user questions such as "who is this player I placed a cursor on?" and not to create statistical numerical data such a chart or a graph.

Therefore, "wherein the display means is operable to display said data list and said animated image," as set forth in claim 1 is not suggested or taught by Jain, which only teaches using the maps for internal processing to generate images for a display or having a user create a description list so as to be able to answer simple user questions. For at least these exemplary reasons, Applicant respectfully submits that independent claim 1 is patentably distinguishable from (and is patentable over) Jain. Claims 2-4 are patentable at least by virtue of their dependency on claim 1. Therefore, it is appropriate and necessary for the Examiner to withdraw this rejection of claims 1-4.

Independent claim 15 contains features similar to the features argued above with respect to claim 1. Therefore, arguments submitted with respect to claim 1 are respectfully submitted to apply with equal force here. For at least substantially analogous reasons, Applicant respectfully submits that claim 15 is patentably distinguishable (and is patentable over) Jain. Claims 16-18 are patentable at least by virtue of their dependency. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claims 15-18.

ARGUMENT IN RE CLAIMS 6, 7, 20-24, 36, 38, AND 39

Claims 6, 7, 20-24, 36, 38, and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Katayama. Of these rejected claims, only claims 6, 20, 22, and 38 are independent. Turning to claim 6, among a number of unique features, it recites:

> data processing means for generating image data by picking up an image of a sports game, for processing said image data generated in accordance with a predetermined format, and for storing said processed data in said predetermined format;
>
> interface means connected to said data processing means comprising an instruction entering means for entering a plurality of instructions, said interface means also receives said processed data in said predetermined format from said data processing means, converts said processed data into a predetermined form in accordance with an entered instruction, and outputs said converted data in accordance with said entered instruction...
>
> wherein said interface means is operable to convert said processed data into each of a chart, a numerical list, an image, and a video.

The Examiner alleges that Katayama's menu screens for statistics are equivalent to the interface means, as set forth in claim 6 (see page 4 of the Office Action). Applicant has carefully studied Katayama's discussion of generating alleged statistics and Applicant respectfully disagrees.

The Examiner alleges that col. 6, lines 12 to 20 of Katayama teach the interface means as set forth in claim 6. Col. 6, lines 12 to 20 of Katayama recite:

> The menu screen II indicates keys for showing the date, stadium name, game number, chief umpire's name, other team's name, weather conditions, start time, final time, and direction and velocity of the wind, as well as keys for displaying screens of the score table L, image M, ball distribution pattern N, batted ball lines O, hit table P, ball distribution pattern for left and right batters Q, career matching with opponent teams R and individual results matching T.

That is, Katayama has a menu screen II that allows the user to select a particular data to view. Katayama's data, however, is not obtained from the images. That is, in Katayama, the data is numerically entered by a scorer using a touch pen. In Katayama, the data is not converted into numerical values (*e.g.* a numeric list) *i.e.*, the initial numeric data is entered manually by a user, *e.g.*, a team scorer, which is then displayed in various formats. In other words, it is not the picked up image data that is converted into a predetermined format and based on user instructions displayed in a numeric list, for example. In Katayama, the charts being displayed are generated from the numeric data entered by the scorer. In short, Katayama fails to teach or suggest a computer application configured to generate numeric data from the picked-up images of the game.

Therefore, "data processing means for generating image data by picking up an image of a sports game, for processing said image data generated in accordance with a predetermined format, and for storing said processed data in said predetermined format... wherein said interface means is operable to convert said processed data into each of a chart, a numerical list, an image, and a video," as set forth in claim 6 is not suggested or taught by Katayama, which only teaches

displaying numeric data entered by the scorer in a form of a chart, and not generating a numeric list from the images.

For at least these exemplary reasons, Applicant respectfully submits that independent claim 6 is patentably distinguishable from (and is patentable over) Katayama. Claim 7 is patentable at least by virtue of its dependency on claim 6. Therefore, it is appropriate and necessary for the Examiner to withdraw this rejection of claims 6 and 7.

Next, independent claim 20 recites, among a number of unique features:

> generating image data by imaging a sports game;
>
> processing said generated image data in accordance with a predetermined format;
>
> storing said processed data in said predetermined format;
>
> wherein when said entered instruction is a first type of instruction, said processed data is converted into a graph, when said entered instruction is a second type of instruction, said processed data is converted into a chart, when said entered instruction is a third type of instruction, said processed data is converted into a list...

The Examiner contends that claim 20 is essentially the same as claim 6 (see page 5 of the Office Action). Applicant respectfully disagrees. Katayama does not teach or suggest depending on the type of instructions, converting image data into a numeric list, a graph, or a chart. In Katayama, it is the numeric data and not the image data that is converted into a chart based on user instruction. For at least this exemplary reason, Applicant respectfully submits that claim 20 is patentably distinguishable (and is patentable over) Katayama. Claim 21 is patentable at least by virtue of its dependency. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claims 20 and 21.

Next, independent claims 22 and 38 contain features that are somewhat similar to the features argued above with respect to claim 6. Therefore, arguments submitted with respect to claim 6 are respectfully submitted to apply with equal force here. For at least substantially analogous reasons, Applicant respectfully submits that claims 22 and 38 are patentably distinguishable (and are patentable over) Katayama. Claims 23 and 24 are patentable at least by virtue of their dependency on claim 22 and claim 39 is patentable at least by virtue of its dependency on claim 38. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claims 22-24, 38, and 39.

Next, with respect to claim 36, it depends on claim 35. As acknowledged by the Examiner on page 12 of the Office Action, Katayama does not teach or suggest all of the unique features of claim 35. Clearly then, Katayama alone cannot anticipate or render obvious the dependent upon claim 35, claim 36. Therefore, it is appropriate and necessary for the Examiner to withdraw this rejection.

IV. Claim Rejections - 35 USC § 103

Claims 5, 8-11, 19, 28, 31-34, 37, and 40 are rejected under 35 U.S.C. § 103(a). Applicant respectfully traverses these rejections in view of the following comments.

UNPATENTABLE OVER JAIN

Claims 5, 19, 28, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable by Jain. Claim 5 depends on claim 1 and claim 19 depends on claim 15. Applicant has already demonstrated that the unique features of the independent claims 1 and 15 are not obvious in view of Jain. Therefore, claims 5 and 19 are patentable at least by virtue of their dependency on claims 1 and 15, respectively.

Regarding claim 28, it contains features similar to the features argued above with respect to claim 1. Applicant has already demonstrated that the teachings of Jain do not render claim 1 obvious. Therefore, arguments submitted with respect to claim 1 are respectfully submitted to apply with equal force here. For at least substantially analogous reasons, Applicant respectfully submits that claim 28 is patentable over Jain. Claims 31-33 are patentable at least by virtue of their dependency. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claims 28, and 31-33.

UNPATENTABLE OVER KATAYAMA IN VIEW OF TAMIR

Claims 8-11 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable by Katayama in view of Tamir. Independent claims 8 and 35, among a number of unique features, recite features similar to the features argued above with respect to claim 6. Therefore, with respect to Katayama, these arguments are submitted to apply with equal force here. Tamir does not cure the deficient teachings of Katayama.

Tamir only teaches converting data (user selected object) received from the highlighter into a video standard format to display a video clip or a number of still images. Tamir, however, fails to disclose, based on the type of the instruction, converting data into a variety of forms such as a chart, a graph and so on. Tamir deals with monitoring the movement of objects, whereas these forms of representation (charts, graphs, etc.) are associated with statistical analysis and are clearly absent from Tamir's teachings.

Therefore, the combined teachings of Tamir and Katayama, even if somehow combined, would not render obvious the unique features of claims 8 and 35. The combined teachings of Tamir and Katayama lack converting image data into a variety of forms including a chart, a graph, and so on. Claims 9-11 are patentable at least by virtue of their dependency on claim 8.

As a result, it is appropriate and necessary for the Examiner to withdraw this rejection of claims 8-11 and 35.

UNPATENTABLE OVER KATAYAMA IN VIEW OF JAIN

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable by Katayama in view of Jain. Claim 34 depends on claim 20. Applicant has already demonstrated that Katayama does not teach or suggest all of the unique features of claim 20. Jain (as also explained above) does not cure the deficient teachings of Katayama. That is, Jain does not teach or suggest generating numerical data from the image data for a statistical display in a form of a graph, a chart, and so on. Therefore, the combined teachings of Katayama and Jain, taken alone or in any conceivable combinations, fail to teach or suggest all of the unique features of claim 20. Claim 34 is patentable at least by virtue of its dependency on claim 20. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of claim 20.

UNPATENTABLE OVER KATAYAMA IN VIEW OF ROSSER AND TAMIR

Finally, claims 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable by Katayama in view of Rosser and Tamir. Of these claims, claim 37 is independent and claim 40 depends on claim 38. Applicant has already demonstrated that Katayama and Tamir, taken alone or in any conceivable combination, do not teach or suggest generating a numeric list from an image data and displaying this generated numeric list. Rosser is only cited for its teaching of simultaneous display of an ongoing game and some other object such as a score board, which is recorded by another camera. Clearly, Rosser does not cure the deficient teachings of Katayama and Tamir. Therefore, the unique features of claims 37 and 38 are not obvious over the combined teachings of Katayama, Rosser, and Tamir. In view thereof, claim 40 is patentable at

least by virtue of its dependency on claim 38. Hence, it is appropriate and necessary for the Examiner to withdraw this rejection of claims 37 and 40.

V. New Claim

In order to provide more varied protection, Applicant adds claims 41 and 42. Claims 41 and 42 are patentable at lest by virtue of their dependency on claim 1.

VI. Allowable Subject Matter

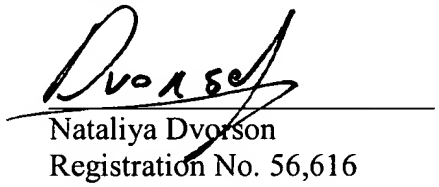
Applicant thanks the Examiner for indicating that claims 29 and 30 contain allowable subject matter. Claim 29 is rewritten into its independent form. Therefore, Applicant respectfully requests the Examiner to now allow claims 29 and 30.

VII. Conclusion and request for a telephone interview

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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